

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
19 December 2002 (19.12.2002)

PCT

(10) International Publication Number  
**WO 02/100349 A3**

(51) International Patent Classification<sup>7</sup>: **G01N 33/53**,  
33/566, 33/567, A61K 38/00, 38/16

(21) International Application Number: PCT/US02/18771

(22) International Filing Date: 12 June 2002 (12.06.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/297,959 13 June 2001 (13.06.2001) US

(71) Applicant (*for all designated States except US*): **THE GOVERNMENT OF THE UNITED STATES OF AMERICA**, as represented by **THE SECRETARY, DEPARTMENT OF HEALTH AND HUMAN SERVICES** [US/US]; National Institutes of Health, Office of Technology Transfer, 6011 Executive Blvd., Suite 325, Rockville, MD 20852-3804 (US).

(72) Inventor; and

(75) Inventor/Applicant (*for US only*): **USDIN, Ted** [US/US];  
5309 Camberley Avenue, Bethesda, MD 20814 (US).

(74) Agent: **DELANEY, Karoline, A.**; **KNOBBE, MARTENS, OLSON AND BEAR, LLP**, 620 Newport Center Drive, 16th Floor, Newport Beach, CA 92660 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK (utility model), SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declaration under Rule 4.17:**

— *of inventorship (Rule 4.17(iv)) for US only*

**Published:**

— *with international search report*

(88) Date of publication of the international search report:  
28 August 2003

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: USE OF THE PARATHROID HORMONE-2 (PTH2) RECEPTOR TO SCREEN FOR AGENTS TO TREAT PAIN

(57) Abstract: The invention is related to use of parathyroid hormone-2 (PTH2) receptor to screen for agents to treat pain.

WO 02/100349 A3

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US02/18771

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G01N 33/53, 33/566, 33/567; A61K 38/00, 38/18  
US CL : 436/500, 501, 503; 435/7.21; 514/12

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 436/500, 501, 503; 435/7.21; 514/12

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Extra Sheet.

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	HOARE et al, Comparison of Rat and Human Parathyroid Hormone 2 (PTH2) Receptor Activation: PTH is a low potency partial agonist at the Rat PTH2 Receptor. Endocrinology. October 1999, Vol.140, No.10, pages 4419-4425, see especially page 4420 and figure 2.	3-10 ----- 1-2, 11-12
X ----- Y	CARTER et al, Studies of the N-Terminal Region of a Parathyroid Hormone-Related Peptide (1-36) Analog: Receptor Subtype-Selective Agonists, Antagonists, and Photochemical Cross-Linking Agents. Endocrinology. 1999, Vol.140, No.11, Pages 4972-4981, see especially pages 4973, 4977-4978 and Figure 5.	3-10 ----- 1-2, 11-12



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	"I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"B" earlier document published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"G" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

17 SEPTEMBER 2002

Date of mailing of the international search report

27 NOV 2002

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703)305-3230

Authorized officer

Valerie Bell-Hamud  
FOZIA HAMUD

Telephone No. (703)308-0196

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/18771

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	HOARE et al, Evaluating the Ligand Specificity of Zebrafish Parathyroid Hormone (PTH) Receptors: Comparison of PTH, PTH-Related Protein, and Tuberoinfundibular Peptide of 39 Residues. Endocrinology. September 2000, Vol.141, No.9, Pages 3080-3086, see especially pages 3081, 3082.	3-10 ----- 1-2, 11-12
A	HOARE et al, Tuberoinfundibular Peptide (7-39), a Novel, Selective, High-Affinity Antagonist for the Parathyroid Hormone-1 Receptor with No Detectable Agonist Activity. Journal of Pharmacology and Experimental Therapeutics. November 2000, Vol.295, No.2, pages 761-770, see entire document.	1-121-12  B. FIELDS SEARCHED Electronic data bases consulted (Name of data base and where practicable terms used):  West, US Patent full, Derwent; STN via medline, biosis, embase, caplus. search terms: parathyroid hormone 2 receptor, tuberoinfundibular peptide TIP39, nociceptin, nociceptive response, , dorsal root ganglion cells

**This Page Blank (uspto)**